LX. *Obſervations made at the Cape of* Good Hope; *by Mr.* Charles Maſon *and Mr.* Dixon; *reduced to apparent Time by Mr.* Maſon. *With an Appendix.*

Read April 22, 1762.

TABLE for the object-glaſs micrometer, applied to the object-end of the tube of a reflecting teleſcope of two feet focal length, its focal length being 495.48 inches.

Inches.	Angle.		Decimals of an inch.	Angle.		Diviſions of Vernier.	Angle.
	′	″		′	″		″
1	7	5·9	.05	0	21.3	1	0.852
2	14	11.9	.10	0	42.6	2	1.7
3	21	17.8	.15	1	3·9	3	2.6
4	28	23.8	.20	1	25.2	4	3·4
5	35	29·7	.25	1	46.5	5	4·3
			·30	2	7.8	6	5·1
			·35	2	29.1	7	6.0
			·40	2	50·4	8	6.8
			·45	3	11·7	9	7·7
			·50	3	33·0	10	8.5
			·55	3	54·3	11	9·4
			.60	4	15.6	12	10.2
			.65	4	36.9	13	11.1
			·70	4	58.2	14	11.9
			·75	5	19·5	15	12.8
			.80	5	40.8	16	13.6
			.85	6	2.0	17	14·5
			·90	6	23·3	18	15·3
			·95	6	44.6	19	16.2
			1,00	7	5·9	20	17.0
						21	17·9
						22	18.7
						23	19.6
						24	20.4
						25	21.3

MEMORANDA.

The body of the obſervatory (erected at the Cape) was circular, the radius of which 6½ feet in the clear; the height of the circular wall 5½ feet; the roof conical, and moveable, (made of board) a lid in it of 3 feet breadth, to open, which was eaſily turned to any part of the heavens, as the whole top moved freely.

The clock was fixed againſt two pieces of timber (let near 4 feet into the ground) of 10 inches by 8; theſe pieces being joined together by pins of 1½ inch diameter.

The mean of Farenheit's thermometer, as it ſtood at 6 or 7 in the morning, noon, 1 or 2^h after, and 7 or 8 in the evening.

From 27th of May 1761 to June 10th	59.5,	Extremes	53 to 65.
From 10th of June to 20th	59.2,	Ditto	50 to 67.
From 20th of June to 30th	57.9,	Ditto	51 to 68.
From 1ſt of July to 15th	56.3,	Ditto	50 to 65.
From 15th of July to 30th	54.3,	Ditto	47 to 60.
From 1ſt of Auguſt to 15th	56.9,	Ditto	48 to 66.
From 15th of Auguſt to 30th	56.0,	Ditto	48 to 68.
From 1ſt of September to 15th	57.4,	Ditto	50 to 69.
From 15th of September to 26th	54.8,	Ditto	49 to 64.

At 47 upon 18th July, in the morning, and 69 the 1ſt and 14th of September, in the afternoon. Theſe were the greateſt differences I ſaw.

June 6th, at the end of the tranſit, 55.

Note. Thoſe obſervations marked : are a little dubious.
Thoſe marked :: are very dubious.
The tranſit was obſerved with the power that magnified 120 time.
The eclipſes of the ſatellites of Jupiter with the ſame power.

The adjuſtment of the nonius of the micrometer, thus - - -

— 0 0 2
+0 1
0 0
—0 3 —
+0 0 +
0 0
0 0
—0 0½
0 0
0 0
—0 2 —

Mean = — 0 0.52 = 0.4 to be added to the obſerved angle, it falling to the left hand of 0.

Obſervations made at the Cape of Good Hope.

1761.
April
☽ 27d. Arrived in Sable bay.
May
♄ 2. Carried the inſtruments aſhore.
☽ 4. Set the clock going, the pendulum having not been altered ſince it came from London.

The quadrant being fixed, the plumb-line ſhewing it did not move.		Going of the clock.
Stars paſſed the wires per clock.	The ſtars returned to the ſame plane.	Loſes per day of the ſtars.
Procyon. ☽ 4d May.	Procyon. ♂ 5th.	
h ′ ″	h ′ ″	′ ″
2 12 5½	2 9 48½	2 17
14 36	12 18	2 18
17 7½	14 51	2 16½
Procyon. ♂ 5th.	Procyon. ☿ 6th.	
2 33 47 :	2 31 31	
36 26	34 9 —	
39 7½	36 48½	

Farenheit's thermometer.

May	7h A. M.	2 or 3h P.M.	7h P.M.
10		65	
11		62	
13	56	60	
14	55	59	57
15	55	60	59
17		62	63
18	58	61	
19	58	63	64
20	60	65	
21	60	64	65
22	60½	63	62½
23	58	61½	
24	58	60½	
25	58	63	63½
26	59	62½	63

1761.	Stars paſſed the wires per clock.	The ſtars returned to the ſame plane.	
May.	Caſtor. ☉ 10th.	Caſtor. ♂ 12th.	
	h ′ ″	h ′ ″	
	2 55 28	Clouds.	
	Clouds.	2 49 30 +	
	56 26½	51 52	
	57 6½	52 32	
	Pollux. 12th.	Pollux. 13th.	
	3 2 27	3 0 11½	
	4 17	2 0	
	6 5½	3 49	
	7 15½	4 57½	
Quadrant as before, and took the other wires, which clouds prevented, on the 12th.	Pollux. 13th.	Pollux. 14th.	
	3 0 11½	3 0 0	
	2 0	59 43 —	
	3 49	1 33 —	
	4 57½	2 41½	
	7 29½	5 9 +	
	8 0	5 43	
	Regulus. 16th.	Regulus. 17th.	
	3 33 23½	3 31 6	
	34 42	32 25½	
	35 39 +	33 21	
	37 56	35 38 —	
	Time per clock.		
May	h ′ ″	° ′ ″	
☽ 18d.	2 11 24 —	55 34 28	Procyon apparent or obſerved zenith diſtances.
	19 52	56 59 0	
	25 26½	57 56 2	
	Procyon. 18d.	Procy. 19d returned.	
	2 34 31½	2 32 17 —	
	35 1½	32 43½	
	37 26	35 11	
	37 52 —	35 34½	
	2 38 42½	36 37 —	

1761. May ☽ 18d.	Time per clock. h ′ ″			Apparent time. h ′ ″
	5 24 0	Cloudy.		
	5 36 0	The eclipſe of the ☽ had been begun ſome time.		
	6 36 5	Entrance into total darkneſs	all very clear	10 53 28
	7 58 20	Emerſion		12 15 37
	9 6 30	The end of the eclipſe		13 23 42

Hitherto the clock ſtood on a lower floor, near to the place intended for the obſervatory; and the obſervatory being now finiſhed, I put the clock into it, wound up the pendulum, and ſet it to nearly ſyderial time.

No obſervations were made material to June 5th, it being cloudy near all the time; but the 5th, in the evening, it fortunately cleared up.

June ♀ 5d.	h ′ ″		° ′ ″	
	11 39 21 +	obſerved zenith diſtances	59 25 0	Antares. I ſet the quadrant to theſe even minutes, and then waited for the ſtar paſſing of the wire.
	11 55 16½		56 11 0	
	58 12 +		55 35 0	
	12 11 44		52 49 0	
	Clouds.			

Equal altitudes. East. Time per clock. h ′ ″	Equal altitudes. West. Time per clock. h ′ ″	Paſſed the meridian. Time per clock. h ′ ″		° ′ ″
12 19 45	20 8 53½	16 16 16¾	Antares point	50 40 0
22 12½	10 21 +			
Clouds.	Clouds.			
12 52 4½	19 35 37 +	16 16 18	Ditto	44 0 0
Clouds.	37 4½			
56 59	40 30	16 16 17¼		
13 4 58 −	19 22 44		Ditto	41 20 0
7 24 +	25 11 +	16 16 17½		
Clouds.	27 37½	16 16 17¾		
13 16 13 +	19 11 29 −	16 16 18	Ditto	39 0 0
18 39	13 55½	16 16 17¼		
21 7 −	16 22 :	16 16 17½		

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1761.	Equal altitudes. East. Time per clock.	Equal altitudes. West. Time per clock.	Passed the meridian. Time per clock.			
	h ′ ″	h ′ ″	h ′ ″		° ′ ″	
June ♀ 5^{d}.	16 9 39	23 5 54 —	19 40 37¼	α Aquilæ	64 48 20	Mr. Dixon.
	12 29½	8 45 :	19 40 37¼			
	15 20½	11 34	19 40 36½			
	21 44	22 53 46 :	19 40 36½	Ditto -	62 40 0	
	24 37	56 37	19 40 37			
	27 27	59 31	19 40 37½			
	16 33 16 +	22 41 58	19 40 37	Ditto -	60 40 0	
	36 15½	44 59 —	19 40 37¼			
	39 16	47 58	19 40 37			

Tranſit of Venus.

	Time per clock.	Parts of the micrometer.		
	h ′ ″	Inches.		
June ♀ 5^{d}.	0 12 0		The ⊙ aſcended in a thick haze, and immediately entered a dark cloud.	
	0 35 0		The firſt ſight of the planet.	
	0 48 40		Very hazy.	
	0 52 0		Cloudy.	
	1 0 0		Ditto.	
	1 18 7	3 90 5	The ⊙'s fartheſt limb from ♀'s fartheſt limb. That is, the ⊙'s northern limb from ♀'s ſouthern limb.	
	27 18	3 95 5 +	Ditto.	
	30 4	3 95 15	Ditto.	
	33 5	4 0 0	Ditto.	
	35 15	4 0 4	Ditto.	
	37 40	4 0 17 ::	Ditto.	
	39 0	4 40 23 —	The ⊙'s diameter.	By a mean of theſe four obſervations, the ⊙'s diameter is = 31′ 33″·3.
		4 40 20½	Ditto.	
	44 0	4 40 21 +	Ditto.	
	46 0	4 40 23½	Ditto.	

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1761.	Time per clock.	Parts of the micrometer.	
June	h ′ ″	Inches.	
♀ 5^{d}.	1 48 20	4 10 0 −	The ☉'s fartheſt limb from ♀'s fartheſt limb, as before.
	50 58	4 10 5	Ditto.
	55 30	0 10 19½	Venus's diameter. By a mean of theſe three obſervations, the diameter of Venus is = 59″.6.
	57 0	0 10 20 −	Ditto.
	59 0	0 10 19 +	Ditto.
	2 2 23	4 19 19 −	The ☉'s fartheſt limb from ♀'s, as before.
	3 55	4 19 22½	Ditto.
	5 45	4 20 5 +	Ditto.
	2 39 16	The time of internal contact very clear	Apparent time. h ′ ″ 21 39 52 —
	56 50	Ditto external - - - - very clear	21 57 23 —
	2 39 12	Ditto, per Mr. Dixon.	
	56 48	Ditto, per Mr. Dixon.	
	3 10 0	Cloudy.	
	9 5 0	Saw the ☉ (but no ſatellite). Cloudy after, till night.	

N. B. The adjuſtment of the nonius of the micrometer as upon the 17th May.

When I ſaw the planet firſt, its periphery, and that of the Sun's, were in a great tremour; but this vaniſhed, as the Sun roſe, and became well defined.

Four minutes before the internal contact, the Sun's diſk was entirely hid by a cloud, for about one minute.

	Equal altitudes. Time per clock.	Equal altitudes. Time per clock.	Paſſed the mer. Time per clock.			
	h ′ ″	h ′ ″	h ′ ″		° ′ ″	
☿ 10.	12 51 39½	19 35 11	16 15 51¾	Antares	44 0 0	Mr. Dixon.
	54 5½	37 35 :	16 15 50¼			
	56 32½	Clouds.				
	13 4 32	19 22 17		Ditto	41 20 0	
	6 59	24 44	16 15 51½			
	Clouds.	27 10 +	16 15 51			

1761.	Altitude. Time per clock.		Apparent time.
June	h ′ ″		° ′ ″
♃ 11.	20 13 55	The ſecond ſatellite of ♃ immerged. Foggy air. The ſatellites appeared faint.	14 51 24

	Equal altitudes. Time per clock.	Equal altitudes. Time per clock.	Paſſed the meridian. Time per clock.			
	h ′ ″	h ′ ″	h ′ ″		° ′ ″	
♀ 12.	12 19 10½	20 7 20½	16 15 43	Antares	50 40 0	Mr. Dixon.
	21 37½	9 50 −	16 15 43¾			
	24 5½	12 18	16 15 44¼			
	12 35 21	19 51 10 +	16 15 43	Ditto	47 20 0	
	37 48	53 37	16 15 42½			
	40 16	56 6 −	16 15 43½			
	19 33 40	The * ϰ Virginis immerged behind the ☽ The occultation was at the ☽'s northern limb, near the interſection of light and darkneſs.			Apparent time. h ′ ″ 14 7 12	
☉ 14.	12 19 1	20 7 10	16 15 33½	Antares	° ″ 50 40	Mr. Dixon.
	21 28½	9 38 +	16 15 33¼			
	23 57	12 6½	16 15 33¾			
☽ 15.	12 35 6½	19 50 55 +	16 15 28½	Ditto	° ′ ″ 47 20 0	
	37 34	53 23	16 15 28½			
	40 1½	55 50 +	16 15 28¼			
	22 45 6 ::	Zenith diſtance	° ′ ″ 3 2 6	Fomalhaut upon the meridian. Plane of the quadrant facing the weſt.		
♂ 16.	12 35 0½	19 50 50	h ′ ″ 16 15 22¾	Antares	° ′ ″ 47 20 0	
	37 28 −	53 18	16 15 23			
	39 55½	55 44½				
	21 9 30	The third ſatellite of ♃ emerged			Apparent time. h ′ ″ 15 26 32	

1761.	Altitude. Time per clock.			
	h ′ ″		° ′ ″	
June ♂ 16.	22 44 55	Zenith diſtance	3 3 45	Fomalhaut upon the meridian. Plane of the quadrant facing the eaſt.

By the obſervations of Fomalhaut, it appears the quadrant does not ſhew the true angle, I new-adjuſted it, &c. &c.

	Equal altitudes.		Paſſed the meridian.		
	Time per clock.	Time per clock.	Time per clock.		
	h ′ ″	h ′ ″	h ′ ″		° ′ ″
♃ 18.	16 53 49½	22 18 44½	19 39 28¼	α Aquilæ -	57 5 0
	57 0 −	21 56½	13 39 28¼		
	17 0 12	25 7 −			
			° ′ ″		
	22 44 40	Zenith diſtance	3 2 28	Fomalhaut upon the meridian. Plane of the quadrant facing the eaſt.	
					Apparent time. h ′ ″
	23 18 35	The ſecond ſatellite of ♃ immerged - - - -			17 27 11

	Equal altitudes.		Paſſed the mer.		
	h ′ ″	h ′ ″	h ′ ″		° ′ ″
♀ 19.	12 18 34 −	20 6 36½	16 15 3¾	Antares - -	50 40 0
	21 1½	9 5½	16 15 3½		
	23 30 −	11 33 +	16 15 3½		
			° ′ ″		
	14 50 24½	Zenith diſtance	9 35 40 :	γ Scorpii upon the merid.	
	15 44 45½	Ditto - -	8 31 32	π	
	16 15 8 −	Ditto - -	8 2 56	Antares.	
	17 7 40½	Ditto - -	9 11 38	θ Ophiuchi.	
	18 40 50 −	Ditto - -	7 21 34	σ Sagittarii.	
					Apparent time. h ′ ″
♄ 20.	23 21 54	The firſt ſatellite of ♃ immerged - - - - -			17 22 26

	Equal altitudes.		Paſſed the mer.	
	h ′ ″	h ′ ″	h ′ ″	
☉ 21.	2 22 54 −	9 31 47½	6 0 35¾	Sun's limbs. Mr. Dixon.
	26 5 +	35 4½	6 0 35¾	
	29 24 +	38 17	6 0 35½	

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1761.	Altitude. Time per clock.				
June	h ′ ″		° ′ ″		
☉ 21.	13 12 46 :	Zenith diſtance	20 0 55	Spica upon the meridian.	
	Equal altitudes.		Paſſed the meridian.		
	Time per clock.	Time per clock.	Time per clock.		
	h ′ ″	h ′ ″	h ′ ″		° ′ ″
	15 52 35 :	23 20 14	19 39 10½	α Aquilæ -	67 40 0
	55 21½	22 59 +	19 39 10¼		
	58 7 —	25 45½	19 39 10¼		
☽ 22.	2 14 25½	19 48 36 +	6 4 39+	Sun's limbs.	Mr. Dixon.
	17 33½	51 46½	6 4 40		
	20 42½	54 55	6 4 40		
	26 57½	35 51½	6 4 39	Ditto.	
	30 9½	39 7 +	6 4 38¾		
	33 26½	42 21 +	6 4 39½		
			° ′ ″		
	13 12 35 ::	Zenith diſtance	24 1 2	Spica upon the meridian.	
	14 4 54	Ditto - -	54 20 45	Arcturus, ditto.	
	34 0	Ditto - -	61 59 52	ε Bootis.	
	15 24 0	Ditto - -	61 26 10	α Coronæ borealis.	
♂ 23.	13 12 37 ::	Ditto - -	24 1 8	Spica upon the meridian.	
	14 4 44	Ditto - -	54 20 42	Arcturus, ditto.	
	34 0	Ditto - -	61 59 48	ε Bootis, ditto.	
	16 14 0	Ditto - -	8 3 3	Antares, ditto.	
	22 33 30	The third ſatellite of ♃ not immerged.			
	Clouds.	Clouds.			
	36 6	It was immerged.			
			° ′ ″		
	22 44 0	Zenith diſtance	3 3 30 :	Fomalhaut upon the meridian. Quadrant weſt.	

From this day to the 1ſt of July, cloudy, with ſtrong winds and rain.

1761.	Equal altitudes.		Paſſed the mer.		
July	Time per clock.	Time per clock.	Time per clock.		
	h ′ ″	h ′ ″	h ′ ″		° ′ ″
☿ 1.	12 58 24½	19 25 46 :	16 14 32 :	Antares -	42 20 0
	13 0 51 +	28 14 :	16 14 32½		
	3 18	Clouds.			
	14 29½	19 0 0		Ditto - -	39 0 0
	16 56	12 8½	16 14 32¼		
	19 23 +	14 35	16 14 32¼		
			° ′ ″		
	17 17 23	Zenith diſtance	2 58 6 S.	λ Scorpii upon the meridian. Plane of the quadrant weſt.	
♃ 2.	16 35 27	Ditto - -	3 40 48 S.	μ Scorpii upon the meridian.	Plane of the quadrant facing the weſt.
	17 17 0	Ditto - -	2 58 8 S.	λ Ditto.	
	18 5 0	Ditto - -	4 1 45 N.	♐ Sagittarii.	
	22 44 0	Ditto - -	3 3 8 N.	Fomalhaut.	
♀ 3.	16 35 30	Ditto - -	3 40 52 S.	μ Scorpii upon the meridian.	Plane of the quadrant facing the weſt.
	17 0	Ditto - -	2 58 0 S.	λ Ditto.	
	18 0 0	Ditto - -	4 1 42 N.	♐ Sagittarii.	
	22 44 0	Ditto - -	3 3 4 N.	Fomalhaut.	
	Equal altitudes.		Paſſed the mer.		
	h ′ ″	h ′ ″	h ′ ″		° ′ ″
♂ 7.	13 14 23	19 9 33	16 14 24½	Antares point	39 0 0
	16 49	12 0 +	16 14 24½		
	19 16 +	14 26½	16 14 24¾		
			° ′ ″		
	16 35 24	Zenith diſtance	3 41 32 : S.	μ Scorpii upon the meridian.	Plane of the quadrant facing the eaſt.
	17 17 0	Ditto - -	2 58 40 S.	λ Ditto.	
	18 5 0	Ditto - -	4 1 0 N.	♐ Sagittarii.	
☿ 8.	16 35 19	Ditto - -	3 41 34 S.	μ Scorpii upon the meridian.	Plane of the quadrant facing the eaſt.
	17 17 0	Ditto - -	2 58 48 S.	λ Ditto.	
	18 5 0	Ditto - -	4 1 8 N.	♐ Sagittarii.	

1761.	Equal altitudes. Time per clock.	Time per clock.	Paſſed the meridian. Time per clock.		
July	h ′ ″	h ′ ″	h ′ ″		° ′ ″
♃ 9.	13 14 13	19 9 22½	16 14 14½	Antares - -	39 0 0
	16 39 −	11 49 +	16 14 14		
	19 6½	14 16 −	16 14 14½		
			° ′ ″		
	16 35 8	Zenith diſtance	3 41 28	μ Scorpii upon the meridian.	Plane of the quadrant facing the eaſt.
	17 17 0	Ditto - -	2 58 46	λ Ditto.	
	18 5 0	Ditto - -	4 1 10 :	δ Sagittarii.	
	22 44 0	Ditto - -	3 2 33	Fomalhaut.	

	Equal altitudes.		Paſſed the mer.		
	h ′ ″	h ′ ″	h ′ ″		° ′ ″
☉ 12.	13 31 39 −	18 51 25	16 13 59	Antares - -	35 20 0
	34 5	53 53 +	16 13 59		
	36 33 −	56 19½	16 13 59¼		
			° ′ ″		
	15 50 45 +	Zenith diſtance	14 47 22	σ Scorpii upon the meridian. Plane of the quadrant facing the weſt.	

	Equal altitudes.		Paſſed the mer.		
	h ′ ″	h ′ ″	h ′ ″		° ′ ″
☿ 15.	13 0 0	18 51 10½	16 13 43¾	Antares - -	35 20 0
	33 49	53 38	16 13 43½		
	36 17 −	56 5			

17 18 30	σ Sagittarii made a near appulſe to the ☽'s limb. The eye could not diſcover by the teleſcope, that it altered its diſtance, till about 17^h 35′.

	Nonius of the micrometer. Inches.	
17 45 18	0 15 15½	Moon's ſouthern limb from σ Sagittarii.
52 55	0 30 3	Ditto.
57 58	0 40 5½	Ditto.
18 2 15	0 50 11½	Ditto.
7 45	0 65 6 + :	Ditto. A little hazy.

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1761.	Equal altitudes. Time per clock.	Time per clock.	Paſſed the meridian. Time per clock.		
July	h ′ ″	h ′ ″	h ′ ″		° ′ ″
♀ 17.	16 0 22 +	23 9 47½	19 37 53½	α Aquilæ -	66 0 0
	3 10	12 36	19 37 53		
	5 59½	15 24	19 37 53		
					Apparent time. h ′ ″
☽ 20.	1 10 35	The ſecond ſatellite of ♃ immerged - - -			17 9 42
	Equal altitudes.		Paſſed the mer.		
	° ′ ″	h ′ ″	h ′ ″		° ′ ″
♂ 21.	5 14 59½	10 41 53 −	8 2 5	Sun's limb -	66 30 0
	18 38 −	45 32 +	8 2 5		
	22 17 +	49 11 −	8 2 5½		
☿ 29.	15 20 19½	23 48 32 +	19 37 5¼	α Aquilæ -	73 20 0
	22 59	51 11½	19 37 5½		
	25 38½	53 51 :			
					Apparent time. h ′ ″
	20 59 1	The third ſatellite of ♃ immerged - - -			12 24 0
	23 52 42	Ditto emerged - - - - - - - - - -			15 17 13
	0 18 15	The firſt ſatellite immerged - - - - -			15 42 42
	0 18 17	Ditto, per Mr. Dixon.			
	Equal altitudes.		Paſſed the mer.		
Aug.	h ′ ″	h ′ ″	h ′ ″		° ′ ″
♀ 7.	15 30 13½	23 37 18 −	19 36 28	α Aquilæ -	71 20 0
	32 54 −	39 59 +	19 36 26½		
	35 36	42 40½	19 36 27		
					Apparent time. h ′ ″
	20 52 32	The 2d ſatellite of ♃ immerged. A litle hazy			11 43 26
	21 14 55	The firſt immerged. Clear - - - - -			12 5 46
			° ′ ″		
♄ 8.	15 48 54 −	Zenith diſtance	14 47 40	σ Scorpii upon the meridian.	
	16 12 0	Ditto - -	8 3 0	Antares ditto.	
☉ 9.	17 4 45	Ditto - -	9 11 42	θ Ophiuchi upon the meridian.	
	18 3 0	Ditto - -	4 1 28	δ Sagittarii ditto.	

1761.	Equal altitudes. Time per clock.	Time per clock.	Passed the meridian. Time per clock.		
	h ′ ″	h ′ ″	h ′ ″		° ′ ″
Aug. ☽ 10.	15 19 28 +	23 47 37	19 36 12	α Aquilæ -	73 20 0
	22 7 −	50 17 +	19 36 12		
	24 47 −	52 55½	19 36 11¾		
			° ′ ″		
	16 3 50	Zenith diſtance	8 55 48	σ Scorpii upon the meridian.	
	11 0	Ditto - -	8 2 54	Antares ditto.	
					Apparent time. h ′ ″
	0 53 45	The fourth ſatellite of ♃ immerged - - - -			15 32 57
	Equal altitudes. h ′ ″	h ′ ″	Paſſed the mer. h ′ ″		° ′ ″
☿ 12.	15 19 18½	23 47 28	19 36 2¾	α Aquilæ -	73 20 0
	21 58 :	50 8 −	19 36 3 :		
	24 37½	52 47 −	19 36 2¾		
					Apparent time. h ′ ″
14.	23 36 11	The firſt ſatellite of ♃ immerged - - - -			14 0 50
♃ 20.	I put the clock forward.				
	Equal altitudes. h ′ ″	h ′ ″	Paſſed the mer. h ′ ″		° ′ ″
♀ 21.	16 39 20½	22 36 0½	19 40 43¼	α Aquilæ -	59 40 0
	42 22	39 4½	19 40 43¼		
	45 26 −	42 6½	19 40 43½		
					Apparent time. h ′ ″
	2 2 35	The firſt ſatellite of ♃ immerged - - - -			15 56 2
	2 30	Ditto, per Mr. Dixon.			
	Equal altitudes. h ′ ″	h ′ ″	Paſſed the mer. h ′ ″		° ′ ″
☉ 23.	16 51 19 :	22 23 34 −	19 40 35¾	α Aquilæ -	57 40 0
	54 27 −	26 44½	19 40 35¾		
	57 37½	29 52 +	19 40 35½ :		
					Apparent time. h ′ ″
	20 38 8	The firſt ſatellite of ♃ immerged - - - -			10 25 10
	38 2	Ditto, per Mr. Dixon.			

1761.

1761.	Equal altitudes. Time per clock.	Time per clock.	Paſſed the meridian. Time per clock.			
	h ′ ″	h ′ ″	h ′ ″		° ′ ″	
Aug. ♃ 27.	16 50 58 +	22 23 14 −	19 40 15	α Aquilæ -	57 40 0	
	54 6 −	26 24	19 40 15			
	57 16 +	29 32 +	19 40 15 +			
					Apparent time. h ′ ″	
	20 20 44	The fourth ſatellite of ♃ immerged - - -			9 53 32	
	20 40	Ditto, per Mr. Dixon.				
	23 16 38	The fourth ſatellite emerged - - - - -			12 49 0	
	Equal altitudes.		Paſſed the mer.			
	h ′ ″	h ′ ″	h ′ ″		° ′ ″	
☉ 30.	16 50 40½	22 22 58 −	19 39 58½	α Aquilæ -	57 40 0	
	53 49 −	26 8 −	19 39 58½			
	56 59 −	29 16	19 39 58¼			
					Apparent time. h ′ ″	
	22 59 45	The firſt ſatellite of ♃ immerged - - - -			12 21 32	
Sept. ♂ 1.	19 47 10 :	The 2d ſatellite of ♃ immerged. Flying clouds			9 2 20	
	Equal altitudes.		Paſſed the mer.			
	h ″	h ′ ″	h ′ ″		° ′ ″	
♃ 3.	17 22 52½	21 49 16	19 39 42¼ ::	α Aquilæ -	52 40 0	
	26 24 +	52 52	19 39 38			
	30 8½ ::	56 25½	19 39 39			
				Apparent time. h ′ ″		
	17 53 30	A ſmall ✱ immerged behind the ☽		7 1 52		Mr. Dixon.
	18 26 7	Another very ſmall ✱ ditto - -		7 34 24		
	19 28 22	The 3d ſatellite of ♃ immerged -		8 36 33		
	28 25	Ditto.				
	Equal altitudes.		Paſſed the mer.			
	h ′ ″	h ′ ″	h ′ ″		° ′ ″	
♀ 4.	17 Clouds.	21 49 10	19 39 32¾	α Aquilæ -	52 40 0	
	26 18½	52 47½	19 39 33			
	29 55½	56 19 +				
					Apparent time. h ′ ″	
	18 2 4	χ Libræ immerged behind the ☽ - - -			7 6 53½	
	19 23 0 ::	Ditto. emerged from the ☽.				

1761.	Equal altitudes.		Paſſed the meridian.		
	Time per clock.	Time per clock.	Time per clock.		
Sept.	h ′ ″	h ′ ″	h ′ ″		° ′ ″
☉ 6.	17 22 32 – 26 5½ 29 42½	21 48 56½ 52 32½ 56 6 –	19 39 19½ 19 39 19 19 39 19	α Aquilæ -	52 40 0
			° ′ ″		
☽ 7.	18 13 24	Zenith diſtance	8 23 46	λ Sagittarii upon the meridian.	
					Apparent time. h ′ ″
♂ 8.	22 52 15	The ſecond ſatellite of ♃ immerged - - -			11 42 20
	Equal altitudes.		Paſſed the mer.		
	h ′ ″	h ′ ″	h ′ ″		h ′ ″
♂ 22.	19 0 29 + 3 0 5 30 –	2 20 47½ 23 18 – Clouds.	22 43 8¾ 22 43 9	Fomalhaut -	46 0 0
			° ′ ″		
	19 37 48	Zenith diſtance	42 10 42	α Aquilæ upon the meridian.	
	22 43 16½	Ditto - -	3 3 16	Fomalhaut ditto.	
					Apparent time. h ′ ″
♃ 24.	21 27 14 27 15	The firſt ſatellite of ♃ emerged - - - - Ditto, per Mr. Dixon.			9 21 35
	Equal altitudes.		Paſſed the mer.		
	h ′ ″	h ′ ″	h ′ ″		° ′ ″
☉ 27.	19 29 38½ 32 7 + 34 36 –	1 51 1 53 29½ 55 57½	22 42 48½ 22 42 48¼ 22 42 48	Fomalhaut -	40 0 0
☽ 28.	Packed up the inſtruments.				
♂ 29.	Put them on board the Mercury, Capt. Harrold.				
Oct.					
♄ 3.	Sailed for St. Helena.				

Charles Maſon.

The inſtruments made uſe of, in theſe obſervations, were,

Two reflecting teleſcopes, each two feet focal length, and magnifying 120 times, made by Mr. Short.

A quadrant of one foot radius, made by Mr. Bird, and the property of the Earl of Macclesfield.

An aſtronomical clock, made by Mr. Ellicott.

A P P E N D I X.

Eclipſes of Jupiter's ſatellites, obſerved at the Royal Obſervatory at Greenwich, with a reflector of two feet focus, magnifying 95 times.

			Apparent time.			
			h	′	″	
1761.	June	23.	15	10	24	Immerſion of the third ſatellite.
	July	20.	15	54	28	- - - of the ſecond.
		22.	12	35	29	- - - of the firſt.
	Aug.	7.	10	51	52	- - - of the firſt.
	Sept.	8.	10	28	5	- - - of the ſecond.
		10.	11	27	6	- - - of the third.
		15.	13	6	36	- - - of the ſecond.
		24.	8	7	46	Emerſion of the firſt.

Eclipſes of Jupiter's ſatellites, obſerved at Mr. Short's houſe in Surry-ſtreet in the Strand, London, by Dr. Bevis, with a reflecting teleſcope of four feet focal length, magnifying 140 times, and by Mr. Short, with a reflector of two feet focus, magnifying 95 times.

			Apparent time.				
			h	′	″		
1761.	July	22.	12	35	13	Immerſion of the firſt ſatellite,	by Dr. Bevis.
			12	34	58	- - - - - - - - - - -	by Mr. Short.
	Aug.	7.	10	29	43	- - - of the 2d ſatellite,	by Dr. Bevis.
			10	29	31	- - - - - - - - - - -	by Mr. Short.
		27.	8	41	16	- - - of the 4th ſatellite,	by Dr. Bevis.
			8	37	4	- - - - - - - - - - -	by Mr. Short.
		30.	11	7	31	- - - of the firſt ſatellite,	by Mr. Short.
	Sept.	8.	10	29	3	- - - of the 2d ſatellite,	by Dr. Bevis.
			10	28	35	- - - - - - - - - - -	by Mr. Short.

N. B. Mr. Short's houſe is 26″½ of time to the weſt of the Royal Obſervatory.

LXI. *Lati-*